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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/552,672	04/19/2000	Hubert M. Segers	PM 268162 P-0135.010-US	2940

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EXAMINER

FULLER, RODNEY EVAN

ART UNIT PAPER NUMBER

2851

DATE MAILED: 10/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/552,672

Applicant(s)

SEGERS ET AL.

Examiner

Rodney E Fuller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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## DETAILED ACTION

### *Remarks*

In response to applicant's Amendment, dated July 17, 2002, the examiner acknowledges the corrections of the objections related to the Specification set forth in the Office Action mailed April 17, 2002.

Regarding the objection to claim 11 under 37 CFR 1.75(c), the applicant makes the argument that claim 11 is a proper "product-by-process" claim under 37 CFR 1.75(c). After review, the examiner has considered the applicant's argument and withdraws the objection.

Regarding the 35 USC 112 rejection of claim 6, the applicant makes the argument that "...claim 6 is consistent with claim 3 and particularly points out and distinctly claims the subject matter which applicants regard as their invention." After review, the examiner has considered the applicant's argument and withdraws the rejection.

Regarding the 35 U.S.C. 102(b) rejection of claims 1, 7, 8, 10-14 as being anticipated by Takizawa (US 5,471,279), the applicant makes the argument that Takizawa (US 5,471,279) "...does not disclose or suggest a lithographic projection apparatus including a substrate table provided with a substrate holder and an intermediate table on which a substrate can be positioned before transfer to the substrate table." The examiner has considered the applicant's arguments and withdraws the rejection. However, Ota (US 6,228,544) makes up for the deficiency of Takizawa (US 5,471,279).

Regarding the 35 U.S.C. 102(b) rejection of claims 12 and 13 as being anticipated by Leoff (US 3,603,646), the applicant amended claim 12 to include the limitation of "...an ionizer

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constructed and arranged to ionize the gas.” Further, the applicant makes the argument that Leoff (US 3,603,646) “...does not disclose or suggest, however, an ionizer construct[ed] and arranged to ionize the air.” The examiner has considered the applicant’s argument in light of the amended claims and withdraws the rejection. However, Doley (US 6,161,311) makes up for the deficiency of Leoff (US 3,603,646).

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4, 7, 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa (US 5,471,279) in view of Ota (US 6,228,544).

Takizawa (US 5,471,279) discloses all the structure set forth in the claims except for the limitation as argued by the applicant of “...an intermediate table on which a substrate can be positioned before transfer to the substrate table.” However, the use of an intermediate table on which a substrate can be positioned before transfer to the substrate table is routine in the art as is evident from the teaching of Ota (US 6,228,544) (Fig. 1, ref.# 20). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takizawa (US 5,471,279) by including an intermediate

table on which a substrate can be positioned before transfer to the substrate table. The ordinary artisan would have been motivated to modify Takizawa (US 5,471,279) in the manner described above for at least the purpose of removing a quantity of heat corresponding to a heat accumulation on the substrate stage during exposure as described by Ota (US 6,228,544) (abstract).

Regarding claim 4, a further difference between Takizawa (US 5,471,279) and the claimed invention is "...wherein said gas bearing has thickness less than 150  $\mu\text{m}$ . It would have been obvious to one having ordinary skill in the art at the time the invention was made to require the gas bearing to have a thickness less than 150 $\mu\text{m}$ , since it has been held that discovering the optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 9, a further difference between Takizawa (US 5,471,279) and the claimed invention is "...wherein said position detector is constructed and arranged to detect a mark on the substrate." However, the use of a position detector that is constructed and arranged to detect a mark on the substrate is routine in the art as is evident from the teaching of Ota (US 6,228,544) (see column 2, line 4). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Takizawa (US 5,471,279) by "...wherein said position detector is constructed and arranged to detect a mark on the substrate." The ordinary artisan would have been motivated to modify Takizawa (US 5,471,279) in the manner described above since it would be an obvious matter of design choice to use a mark or an edge detector, since applicant has not disclosed that using a mark detector solves any stated problem or

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is for any particular purpose and it appears that the invention would perform equally well with either a mark or edge detector.

3. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Leoff (US 3,603,646) in view of Doley, et al. (US 6,161,311).

Leoff (US 3,603,646) discloses all the structure set forth in the claims except for the newly added limitation of "...an ionizer constructed and arranged to ionize the gas." However, the use of an ionizer to ionize the gas in a semiconductor wafer handling system is routine in the art as is evident from the teaching of Doley (US 6,161,311) (abstract). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Leoff (US 3,603,646) by including "...an ionizer constructed and arranged to ionize the gas." The ordinary artisan would have been motivated to modify Leoff (US 3,603,646) in the manner described above for at least the purpose of discharging the static about the intermediate table of the substrate table.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa (US 5,471,279) and Ota (US 6,228,544) as applied to claim 1 above, and further in view of Doley et al. (US 6,161,311).

Regarding claim 2, Takizawa (US 5,471,279) and Ota (US 6,228,544) discloses all the structure set forth in the claims except "...wherein said preparatory station comprises a gas ionizer constructed and arranged to ionize said gas." However, the use of a gas ionizer to ionize gas coming in contact with a photolithographic substrate is

routine in the art as is evident from the teaching of Doley, et al. (US 6,161,311) (see abstract, lines 19-28, Doley). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Takizawa (US 5,471,279) by including a "...gas ionizer constructed and arranged to ionize said gas." The ordinary artisan would have been motivated to modify Takizawa (US 5,471,279) in the manner described above for at least the purpose of removing any static charge as described by Doley (US 6,161,311) (see abstract, lines 25-28, Doley).

5. Claim 3, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa (US 5,471,279) and Ota (US 6,228,544) as applied to claim 1 above, and further in view of Tsutsui (US 4,720,732).

Regarding claim 3, Takizawa (US 5,471,279) and Ota (US 6,228,544) discloses all the structure set forth in the claims except "...wherein said intermediate table comprises a first temperature controller constructed and arranged to regulate a temperature of the intermediate table." However, the use of a "...temperature controller constructed and arranged to regulate a temperature" of a table which hold a substrate is routine in the art as is evident from the teaching of Tsutsui (US 4,720,732) (see abstract, lines 8-13, Tsutsui). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Takizawa (US 5,471,279) by "...wherein said intermediate table comprises a first temperature controller constructed and arranged to regulate a temperature of the intermediate table." The ordinary artisan would have been motivated to modify Takizawa (US 5,471,279) in the manner described

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above so that the reliability of alignment between the pattern of the mask and the pattern formed on the wafer is improved as described by Tsutsui (US 4,720,732) (see abstract, lines 14-17, Tsutsui).

Regarding claim 5, a further difference between modified Takizawa (US 5,471,279) and the claimed invention is "...wherein said preparatory station comprises a second temperature controller constructed and arranged to regulate the temperature of said gas." However, Tsutsui (US 4,720,732) discloses a temperature controller (Fig. 1, ref.# 8, Tsutsui) to control the temperature of air flowing into the substrate table. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Takizawa (US 5,471,279) by "...wherein said preparatory station comprises a second temperature controller constructed and arranged to regulate the temperature of said gas." The ordinary artisan would have been motivated to modify Takizawa (US 5,471,279) in the manner described above to help maintain the same temperature between the substrate and the substrate table so that the reliability of alignment between the pattern of the mask and the pattern formed on the wafer is improved as described by Tsutsui (US 4,720,732) (see abstract, lines 14-17, Tsutsui).



***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney Fuller whose telephone number is (703) 306-5641. The examiner can normally be reached on Monday through Friday from 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams, can be reached on (703) 308-2847.

Rodney Fuller  
Primary Examiner

A handwritten signature in black ink, appearing to read 'R. Fuller', is written over the printed name of the examiner.

October 20, 2002